GDEST Site Visit Panel: Introduction, Overview, and Summary Findings

Africa faces a wide range of challenges in its efforts to develop vibrant and sustainable economies that ensure the well-being of its population. These include serious health, environmental, and governance issues that often reach critical levels. Often, these issues combine in complex manners and take place in a backdrop of low income, limited economic resources, and rapidly changing demographic trends.

Geospatial sciences provide valuable tools that develop insights to identify key issues, monitor trends, and analyze alternatives to achieve national and regional development goals. In order for the potential of geospatial science to be achieved, Africa will need to develop its human resource capacity to effectively use these tools, establish a robust spatial data infrastructure, develop effective means to access relevant data, and establish networks among professionals so that decision makers receive timely and relevant information—and realize the value of these information products in their everyday efforts.

Applications of geospatial science in Africa entered a new phase with the advent of the use of satellite imagery and geographic information systems, beginning in the early 1980's, but maintained a focus that was almost uniquely project-based. These projects collected, analyzed, and distributed products that addressed specific issues for specific audiences. This specific focus enabled scientists and practitioners to broaden the impact of projects, increase the analytical power leading to project implementation, and demonstrate the value of geospatial analysis (particularly GIS and remote sensing). However, because these projects were specific in focus and of a limited duration, much of the legacy data from these efforts has been lost.

A major change in this project-specific application occurred in the mid-1990s when the World Bank began a process of state of the environment reporting at a national level. In 1999, the World Bank reported that in the 1970s and 1980s, only one or two institutions in each sub-Saharan Africa countries were involved in the establishment of environmental information systems, the 1990s saw a tremendous growth in such efforts with over 500 EIS-related projects underway.

Another major watershed occurred in the lead-up to the World Summit on Sustainable Development in 2002. The U.S. Department of State, in collaboration with USAID and other agencies launched an initiative entitled Geospatial Information for Sustainable Development (GISD). This initiative selected a variety of case projects throughout Africa that demonstrated the use of geospatial analysis at the applied level. GISD also funded a study carried out by the National Science Foundation, which resulted in a report entitled "Down to Earth."

At the same time, the Global Earth Observation effort has moved to establish regional data structures, analytical programs and policy dialogues that have engaged national governments and institutions. The issues of spatial data infrastructure and data access have proven to be of particular value. This has been supplemented by a concentrated effort by the United Nations to do the same, as well as increasing institutional and human capacity at the technical level.

GDEST offers an excellent opportunity to contribute to the initiatives underway in Africa. The three GDEST themes offer a framework for such a contribution:

- (1) **Observing Africa**, including examining trends and opportunities in monitoring the environment and sustainability issues;
- (2) Analysis of regional challenges to Africa, how decisions and policies have been directly influenced by modeling, analysis, and visualization tools; and
- (3) *The African data stream*, constraints and approaches for getting valid data in a timely and affordable manner in a useful format, and how it can be shared among collaborators.

Africa offers an excellent frontier to further the growth of geospatial sciences. Geospatial science has a demonstrated value in addressing the manifold challenges that the continent faces. The charge to GDEST collaborators is to effectively engage Africa's experts in shared areas of endeavor, treating them as colleagues rather than from a standpoint of tutelage, exchanging expertise and resources on a quid pro quo basis, and being aware of the institutional and cultural milieu in which such collaboration takes place.

As the GDEST effort progresses, a set of principles can act as a guide:

- Follow-on collaboration should link to and reinforce existing networks rather than import new and foreign institutions. U.S. collaborators must acknowledge the effort and initiative that has already taken place in the region and avoid diluting or draining the accomplishments already achieved.
- Collaboration should not be motivated by promises of funding as much as an honest exchange of ideas, expertise and interests. When funding is provided, it should ensure that funds are equitably shared amongst African partners to the same extent as their U.S. counterparts.
- Collaboration efforts should engage African experts as equal partners in the conceptualization, design and implementation of any geospatial science program. African societies are generally consensus-based and recoil from prescriptive or directive approaches.
- The focus should be on building upon already established capacity rather than capacity-building
 as it is traditionally applied. Expertise in the region exists and rather than solely bringing a new
 cadre of trained technicians on board, collaborative efforts should bring regional expertise to bear
 on training and education efforts.
- Collaborative efforts should create or reinforce linkages between academic institutions, governmental and non-governmental organizations; recognizing that academic faculty members may have a longer tenure than their governmental or non-governmental counterparts and can pursue the line of enquiry even after project funding ceases.
- GDEST collaboration should establish key milestones to track the progress being undertaken.
- GDEST follow-on collaboration should make use of an already existing calendar of events to
 maximize the effectiveness of their information sharing efforts. In particular, the upcoming
 AARSE conference in Accra (October 2008), the IGRSS conference in Cape Town (July 2009),
 and the Africa GIS conference in Kampala (late 2010) offer excellent opportunities to link to a
 large constituency who are in place and thereby leverage attendance that is paid for by other
 sources.

